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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,838	07/16/2001	Roy G. Gordon	00246/514003	7489

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EXAMINER

CLEVELAND, MICHAEL B

ART UNIT PAPER NUMBER

1762

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,838

Applicant(s)

GORDON ET AL.

Examiner

Michael Cleveland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12-13 refer to the complexes of Tables 3-8. However, some abbreviations in Tables 4, 7, and 8 are not defined in the specification nor the prior art: "dmtpdata" (Examples 11, 15), "dbeta" (Example 30), "thteta" (Examples 35, 38, 39). The metes and bounds of the claims are not clear because the identity of these compounds has not been disclosed.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 12-13 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the compounds with defined terminology, does not reasonably provide enablement for the compounds of Examples 11, 15, 30, 35, 38, and 39. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims because the identity of these compounds has not been disclosed.

Claim Interpretation

5. Claim 18 recites "The process of claim 16 in which the metal or metals are selected from the group consisting of barium, strontium and titanium." However, the only metal mentioned in claim 16 is "an alkaline-earth metal". Titanium is not an alkaline earth metal. Accordingly, claim 18 has been interpreted as requiring that the metal is barium or strontium. Similarly, claim 19 has been interpreted as requiring strontium because bismuth, niobium, and tantalum are not alkaline earth metals.

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-9 and 14-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Gordon (U.S. Patent 5,980,983, hereafter '983).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claims 1-2: '983 teaches liquid alkaline earth metal beta-diketones adducted with an amine (pentamethyldiethylenetriamine or pmdeta) (col. 12, lines 39-61), capable of being vaporized for use in chemical vapor deposition (CVD) (col. 12, lines 55-57).

Claims 3-6: Useful ketones include 2,2,6,6,-tetramethyl-3,5-heptanedione (tmhd), one of the beta-diketones of Applicant's Table 1 (col. 6, lines 5-37), wherein R^1 and R^2 have four carbons and R^3 is hydrogen (which has zero carbons).

Claims 7-9: Pmdeta fits the formula of Applicant's claim 7, wherein R^a - R^e are each methyl (i.e., alkyl) groups and $n=1$.

Claims 14-15: The claimed solubilities must necessarily be features of the disclosed species or else must be caused by essential features which are not present in the claims. Col. 7, lines 22-37 indicate that the compounds are highly soluble in organic solvents.

Claims 16, 18-19: The vapor of the substance is contacted with a substrate to form a barium or strontium containing-film (col. 12, lines 55-62).

Claim 17: The precursors may be used to form metal oxides (Abstract).

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Claim 20-21: The material may be deposited by spin-coating or sol-gel coating (col. 7, line 66-col. 7, line 2.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon '983 in view of Sandy (U.S. Patent 4,189,306, hereafter '306).

'983 is discussed above, but does not explicitly teach the use of compounds of the formula of claim 7 wherein at least one of the R substituents contains more than one carbon atom and does not teach the specific amines and complexes of Tables 2-8.

However, as discussed above, '983 teaches that the amine ligand is pmdeta wherein Applicant's R^a-R^e are each methyl (i.e., alkyl) groups and n=1. It has long been known that methyl groups in amine adducts that enhance the solubility, stability, and volatility of metal beta-diketones (col. 4, lines 32-45) may be substituted by hydrogen or ethyl, propyl, or butyl groups (col. 4, lines 28-31; col. 2, lines 8-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have chosen each of R^a-R^e independently from the group of hydrogen, methyl, ethyl, propyl, or butyl with the expectation of similar results because '306 indicates that such ligands are equally operable as substituents on amines used to stabilize volatile metal beta-diketones. The selection of something based on its known suitability

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for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vaarstra (U.S. Patent 6,273,951), Hintermaier et al. (U.S. Patent 6,303,391) and Baum et al. (U.S. Patent 5,919,522) are each cited for their teachings of amine-adducted metal beta-diketones.

Miller et al. (U.S. patent 4,501,602) is cited for its teachings of the affects of Lewis base adducts on the volatility and stability of metal beta-diketones. See col. 7, lines 14-25.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 8-5:30 M-F, with alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Michael Cleveland
Patent Examiner
August 9, 2003